Caption for ISEMP_DataMangementSystem.pdf. These Data Management Tools work together to form the ISEMP Data Management System.

ISEMP Data Management Tool	Data Management Process
Protocol Manager	Manage and catalog data collection protocols
Archive Template Modules (ATM)	Support data entry and ensure data complies with protocols
Aquatic Resource Schema (ARS)	Link metadata to observational data, support metric calculation, and organize data within STEM databank
STEM Databank	Archive data, calculate metrics, and format output
ISEMP Website	User interface to search and export data from STEM databank, provide access to reports, maps, and other resources
ESRI's ArcSDE	Manage GIS data and provide spatial context to data within STEM databank
Sub-basin Geo-database	Distribute GIS data on DVD's
Training Workshops	Train users and gather feedback

Caption for ISEMP_AquaticResourcesSchema.pdf. The Aquatic Resources Schema is designed to standardize aquatic resource metadata tracking and attributes.

Objective	Approach
Metadata tracking	Require statistical design, protocol, site, and data collection event* information to be entered prior to entering observational data.
Standardized data storage	Define super-set of tables and attributes, standardize storage of categorical variables (e.g. size class and species), use protocol metadata to control data entry
Data integrity	Use protocol metadata to limit acceptable values during data entry
Data reporting	Provide standard data export formats for submitting raw data to central databases or for including summary tables in written reports
Data analysis	Include tables for storing water quality, fish abundance, and stream habitat and define relationships between data types. Generate standard queries.
Cost/benefit analysis	Require data collection method, start time, and end time of data collection events to be recorded. Time per unit can than be compared with results from protocol comparisons

* A data collection event is defined as any event where a research goes to the field and returns with data and includes information on who, why, how, and where collected data. A data collection event requires a project, a statistical design, a protocol, a site, a start time, and an end time to be defined.